

**Advance** **BUY of the MONTH!**

★★★★★ **GR-VARIACS** ★★★★★

110 V AC in 0-270 V AC 2 Amps. NEW. Fully Cased. W/ Knob, Dial, 6 Ft. Line Cord, Receptacle; And On/Off Switch. Original Cn. **\$16.95**

**POWER SUPPLY KIT BARGAIN!**

Primary 115V, 60 Cy. Sec. 400-0-400 V. @ 200 Ma. 6.3 V @ 5 Amp. 5 V @ 4 Amp std. mounting plus 8 Hy 200 Ma chokes and two 8 mfd. oil condensers. Kit # 500 **\$7.50**

DC Power Supply Kit 24 VDC—2 amp output. **\$3.95**

**BUYS . . . RELAYS . . . BUYS**

110 VAC  
3 PDT ceramic, Leach 21177. **\$3.35**

5 PST hvy duty Dunco. **4.79**

12 PDT Dunco. **16.95**

6 VDC, P&S, DPST. **1.79**

12 VDC DPDT plus SPST  
10 amp contact. **\$1.39**

SIGMA 41P, 24VAC or 6VDC 1.40 w/ 1/2" for 110 VAC. **1.89**

SIGMA 4P, 5.00-ohm plate pull-in @ 2 Ma 2.25

**LARGE STOCK AC, DC RELAYS**

★★★★★ **Solenoids** ★★★★★

A-2 #200 \$2.95 115V 60 Cy. cont. duty. (2 for \$5.50) 18 Lb. pull. **\$5.50**

24V & 230V SOLENOIDS IN STOCK

**STEPPING RELAYS**

Resettable type, 3 deck, 10 pos. 24 VDC. **\$8.95**

3 deck, 25 pos. no reset. **\$8.95**

2 deck, 44 pos. no reset. **\$8.95**

8 deck, 23 pos. no reset. **\$7.50**

**STEP UP-DOWN TRANSFORMER**

500 Watt 110/220 V. 60 cycle. **\$4.95**

30 Watt 110/220 V. 60 cycle. **\$1.45**

**CHOKES FULLY CASED**

8 Hy, 100 Ma. **\$1.49**

8 Hy, 200 Ma. **1.89**

10 Hy, 150 Ma. **2.19**

12 Hy, 100 Ma. **2.59**

**WHIP ANTENNAS**

AN-131 collapses to 17", opens to 10 feet. Ideal for mobile and portable operations. **\$1.89**

3 for \$5.25

★★★★★ **Transformers** ★★★★★

6.3 V FILAMENT  
20 Amp. **\$3.95**  
15 Amp. **3.59**  
10 Amp. **2.19**  
5 Amp. **1.89**

12V, 2 Amp. **\$1.49**  
24V 2 Amp. **1.95**  
24V 5 Sec. 10 Amps. **11.0 V Pri.**  
Excellent for pr. of 800's **\$3.95**

**ISOLATION TRANSFORMER**

115 in, 115 out. Conservatively rated 250 watts. W/ cord, plug and receptacle. **\$6.50**

**SCOOP! RG-8U CO-AX CABLE**

52-ohm impedance, 100-ft. length. **\$6.75**

(1000 ft. **\$60**)

**OIL CONDENSER BARGAINS**

10 mfd 1500 VDC **\$2.95**

1 mfd 600 VDC	.25	10 mfd 1500 VDC	\$2.95
2 mfd 600 VDC	.35	2 mfd 2000 VDC	1.50
4 mfd 600 VDC	.75	2 mfd 3000 VDC	1.50
10 mfd 600 VDC	1.10	2 mfd 4000 VDC	1.50
20 mfd 600 VDC	2.75	1 mfd 6000 VDC	1.85
1 mfd 1000 VDC	.60	2 mfd 4000 VDC	5.75
2 mfd 1000 VDC	.75	1 mfd 6000 VDC	5.75
4 mfd 1000 VDC	1.25	1 mfd 7500 VDC	5.95
8 mfd 1000 VDC	1.60	2 mfd 10000 VDC	32.50
10 mfd 1000 VDC	1.75	1 mfd 12500 VDC	28.50
15 mfd 1000 VDC	2.45	2 mfd 12500 VDC	38.00
4 mfd 1500 VDC	1.75		
6 mfd 1500 VDC	2.45		

(Limited Supply) ESTERLINE-ANGUS REORDER model AW, portable, 0-1 Ma. **\$159.50**

**SPECIAL! PANEL METERS**

**1" METERS**

0-300 Micro. **\$5.45**

0-1 Ma **4.95**

**2" METERS**

0-1 Ma (0-150 scale) **\$3.95**

0-4 Amps RF. **3.95**

0-200 Micro, rubber mnt. **2.95**

0-30 Ma. **3.95**

0-300 VAC. **3.95**

-10.0 to +5 DB (Weston). **4.95**

0-2 KV DC, w/shunt. **\$5.95**

0-15 KV DC, 3" w/shunt. **6.95**

0-31 1/2 KV, 3", w/shunt. **6.95**

2" Dual Scale w/ high and low switch

0-150 VDC, 0-7 1/2 VDC. **3.95**

-15 to +25 DB, 4" sq. **6.95**

**Da Mont Power Transformer**

950 V. CT 200 ma. 2 6.3 V @ 5 Amp. **\$7.50**

5 V. @ 4 Amps. **\$7.50**

**Special on . . . POWER SUPPLIES!**

All wired—Ready to use.

PRI—115 V AC

SEC.—540-0-540 V @ 250 Ma

5.4 & 5 V @ 6 Amps

12 V @ 5 Amps

40 V @ 50 Ma

6.3 V CT @ 7 Amps

12 Hy Choke @ 300 Ma

4 10 mfd. 600 V Cap.

3 5U4's **\$21.95**

Min. Order \$3.00—25% with order F.O.B. New York 10 DAY GUAR. PRICE OF MODEL ONLY

**Advance Electronics**

6 West Broadway • New York 2, N. Y. • RECTOR 3-6779

# 1958 INDEX VOLUMES 59-60

As a service to our readers we are again presenting a complete listing of all feature articles which appeared in RADIO & TV NEWS during 1958. We suggest you keep this for reference.

## AMATEUR

**ANTENNAS**

Adding 21 mc. to the Off-Center-Fed Antenna (Minarik, W9GJY) 48 June

Listening to the Satellites (Kunze, W0WVM) 44 Nov.

Putting the Helix to Work (Blair, K6QXW) 66 Nov.

This Month's Cover. 45 Nov.

**HAM GEAR**

Advanced Ham Receiver in Kit Form 64 Dec.

Automatic Tracking Mobile System (Keen, W2CTK) 53 Oct.

Compact 35-Watt Standby Transmitter (Bumbaugh, W6HL) 59 June

"Control Master"—A Crystal Dialing Unit (Brizendine, W4ATE) 49 Mar.

Frequency Meter Doubles as SSB and C.W. Detector (Longerich, DL4RX/W2GOY) 100 Sept.

Linear Amplifier for SSB Exciters (Marriner, W6BLZ) 69 Nov.

"Mighty Milli-watt" (Stoner, W6TNS) 51 Sept.

"Muscle Mouse"—A Compact 50-Watt Transmitter (Stanley) 54 Feb.

Shunt-Fed Modulation for Your AM Transmitter (Gencille, W3FEP) 46 Aug.

Simple Transistor Keyer Unit (McCarthy, K6EAW) 39 Apr.

6- and 10-Meter Transistorized Amateur Receiver (Holte, W5YR) 149 Dec.

SSB Exciter Attenuator Pads (Hyman, W9VRX) 52 Dec.

30-Watt Transistor Mobile Modulator (Jordan, W9PUK & Prewitt, W9UKT) 42 Jan.

Transistorized Automatic Key (McCarthy, K6EAW) 36 July

Transistorized Code Oscillator (McDonald) 47 May

Two-Band V.H.F. Converter (Taylor, W8NAP) 60 July

Zero Clipper (French, W1JKZ) 40 May

**MISCELLANEOUS**

Army MARS Net Resumes Technical Broadcasts. 91 Sept.

Far East Ham Convention on Guam 110 Feb.

Modern Ham Shack. 100 Feb.

1957 Ham of the Year. 96 Apr.

Receiving & Recording Satellite Signals (Dearborn) 138 Dec.

Using Your Bug Right! (Dorsey, ex-W4KXX) 111 Sept.

## AM-FM

**RECEIVERS**

FM Tuner Kit Features Novel "Front End" 56 June

Improving Your FM Tuner (Bernard) 54 Sept.

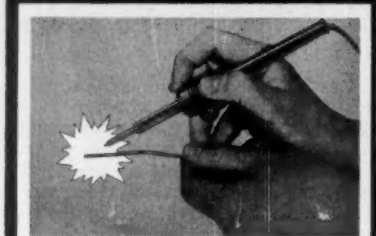
New G-E FM Detector (Burns) 80 June

Simple Hi-Fi AM Tuner (Morris) 33 Aug.

Transistorized FM Receiver (Najork) 115 May

**WELD-SOLDER ANYTHING FAST!**

THE WORLD'S MOST POWERFUL MINIATURE SOLDERING IRON MENDS AND REPAIRS 1001 ITEMS IN A JIFFY



AMAZING "MIGHTY-MITE SOLDER-ETTE" SAVES HUNDREDS OF DOLLARS IN REPAIRS... FIXES EVERYTHING FROM TV SETS TO TOYS! You can save up to \$25.00 the very first time you use your Solder-Ette. Stop paying expensive repair bills. Precision engineered, Solder-Ette permits you to make thousands of household and shop repairs in a jiffy! Repair appliances, TV & Radio Sets, lamps, electrical wiring, motors, toys, jewelry, etc. Easy-grip handle is heat-proof. Modern design permits use in even most crowded spots. Copper alloy tip screws into super-heat element, permitting easy replacement. Complete with quality line cord. 25 Watts 110-120V AC/DC. FULLY GUARANTEED. If not delighted return within 10 days for full refund. Send \$2.98 Postpaid plus 25¢ for PP & handling. Sorry, no C.O.D.

Tube Wholesalers Co., Dept. S-RT  
Box 61, Baldwin, L.I., N.Y.

**CENTER ELECTRONICS**

ALWAYS ON THE SPOT WITH SPECIALS

**STEPHENS 206 AXA**

15" 2-Voice Coil Coaxial Speaker  
Freq. response 20-20,000 cps—BRAND NEW  
Audiphile Net **CENTER \$99.50**  
\$162.50 PRICE

Mail Orders 25% deposit, Balance COD

**GET OUR SPECIAL PRICES ON YOUR HI-FI REQUIREMENTS**

**CENTER ELECTRONICS CO., INC.**

Dept. N-1, 72 Cortlandt St., New York 7

**ELECTRONICS**

**PREPARE FOR A GOOD JOB!**

**BROADCAST ENGINEER**

**RADIO SERVICING AUTOMATION**

TELEVISION SERVICING  
BLACK & WHITE—COLOR

APPROVED FOR VETERANS AND SURVIVORS OF VETERANS  
BUILDING AIR CONDITIONED  
SEND FOR FREE LITERATURE

**BALTIMORE TECHNICAL INSTITUTE**

1425 EUTAW PLACE, BALTIMORE 17, MD.

**Advance** **BUY of the MONTH!**

★★★★★ **GR-VARIACS** ★★★★★

110 V AC in 0-270 V AC 2 Amps. NEW. Fully Cased. W/Knob, Dial, 6 Ft. Line Cord, Receptacle; And On/Off Switch. Original Ctns. **\$16.95**

**POWER SUPPLY KIT BARGAIN!**

Primary 115V, 60 Cy. Sec. 400-0-400 V. @ 200 Ma., 6.3 V @ 5 Amp., 5 V @ 4 Amp. std. mounting plus 8 Hy 200 Ma. chokes and two 8 mfd. oil condensers. Kit # 500 **\$7.50**

DC Power Supply Kit 24 VDC—2 amp output. **\$3.95**

**BUYS . . . RELAYS . . . BUYS**

110 VAC  
3 PDT ceramic, Leach 21177. **\$3.35**

5 PST hvy duty Dunco. **4.79**

12 PDT Dunco. **16.95**

6 VDC, P&S, DPST **1.79**

12 VDC DPDT plus SPST  
10 amp contact **\$1.39**

SIGMA 41P, 24VAC or 6VDC 1.40 w/150m for 110 VAC. **1.89**

SIGMA 4P, 5.00-ohm plate pull-in @ 2 Ma. 2.25

**LARGE STOCK AC, DC RELAYS**

★★★★★ **Solenoids** ★★★★★

A-2 #200 \$2.95 115V 60 Cy. cont. duty. (2 for \$5.50) 18 Lb. pull. **\$5.50**

24V & 230V SOLENOIDS IN STOCK

**STEPPING RELAYS**

Resettable type, 3 deck, 10 pos., 24 VDC. **\$8.95**

3 deck, 25 pos., no reset **\$6.95**

2 deck, 44 pos., no reset **\$6.95**

8 deck, 23 pos., no reset **\$7.50**

**STEP UP-DOWN TRANSFORMER**

500 Watt 110/220 V. 60 cycle. **\$4.95**

30 Watt 110/220 V. 60 cycle. **\$1.45**

**CHOKES FULLY CASED**

8 Hy, 100 Ma. **\$1.49**

8 Hy, 200 Ma. **1.89**

10 Hy, 150 Ma. **2.19**

12 Hy, 100 Ma. **2.59**

**WHIP ANTENNAS**

AN-131 collapses to 17", opens to 10 feet. Ideal for mobile and portable operations. **\$1.89**

3 for \$5.25

★★★★★ **Transformers** ★★★★★

6.3 V FILAMENT  
20 Amp. **\$3.95**  
15 Amp. **3.59**  
10 Amp. **2.19**  
5 Amp. **1.89**

12V, 2 Amp. **\$1.49**  
24V 2 Amp. **1.95**  
24V 5 Sec. 10 Amps. **11.0 V Pri.**  
Excellent for pr. of 800's **\$3.95**

**ISOLATION TRANSFORMER**

115 in, 115 out. Conservatively rated 250 watts. W/cord, plug and receptacle. **\$6.50**

**SCOOP! RG-8U CO-AX CABLE**

52-ohm impedance, 100-ft. length. **\$6.75**

(1000 ft. **\$60**)

**OIL CONDENSER BARGAINS**

10 mfd 1500 VDC **\$2.95**

1 mfd 600 VDC	.25	10 mfd 1500 VDC	\$2.95
2 mfd 600 VDC	.35	2 mfd 2000 VDC	1.50
4 mfd 600 VDC	.75	2 mfd 3000 VDC	1.75
10 mfd 600 VDC	1.10	2 mfd 4000 VDC	1.75
20 mfd 600 VDC	2.75	1 mfd 6000 VDC	1.85
1 mfd 1000 VDC	.60	2 mfd 4000 VDC	5.75
2 mfd 1000 VDC	.75	1 mfd 8000 VDC	6.75
4 mfd 1000 VDC	1.25	1 mfd 6000 VDC	5.95
8 mfd 1000 VDC	1.60	1 mfd 7500 VDC	6.95
10 mfd 1000 VDC	1.75	2 mfd 10000 VDC	32.50
15 mfd 1000 VDC	2.45	1 mfd 12500 VDC	28.50
4 mfd 1500 VDC	1.75	2 mfd 12500 VDC	38.00
6 mfd 1500 VDC	2.45		

(Limited Supply) ESTERLINE-ANGUS REORDER model AW, portable, 0-1 Ma. **\$159.50**

**SPECIAL! PANEL METERS**

**1" METERS**

0-300 Micro. **\$5.45**

0-1 Ma. **4.95**

**2" METERS**

0-1 Ma. (0-150 scale) **\$3.95**

0-4 Amps RF. **3.95**

0-200 Micro, rubber mnt. **2.95**

0-30 Ma. **3.95**

0-300 VAC. **3.95**

-10.0 to +5 DB (Weston). **4.95**

0-2 KV DC, w/shunt. **\$5.95**

0-15 KV DC, 3" w/shunt. **6.95**

0-31.5 KV, 3", w/shunt. **6.95**

2" Dual Scale w/high and low switch

0-150 VDC, 0-7 1/2 VDC. **3.95**

-15 to +25 DB, 4" sq. **6.95**

**3" METERS**

0-20 Microamps. **\$5.95**

0-100 Microamps. **5.95**

0-200 Microamps. **5.95**

0-500 Microamps. **5.95**

0-5 VAC. **3.95**

0-150 VAC. **4.95**

0-1 Ma. **3.95**

0-5 Ma. **3.95**

0-100 Ma. **3.95**

0-250 Ma. **3.95**

200-0-200 VDC. **3.95**

0-5 Amp. AC. **3.95**

300-0-300 AC mps w/shunt **6.50**

0-2 KV DC, w/shunt. **\$5.95**

0-15 KV DC, 3" w/shunt. **6.95**

0-31.5 KV, 3", w/shunt. **6.95**

2" Dual Scale w/high and low switch

0-150 VDC, 0-7 1/2 VDC. **3.95**

-15 to +25 DB, 4" sq. **6.95**

**Da Mont Power Transformer**

950 V. CT 200 ma. 2 6.3 V @ 5 Amps. **\$7.50**

5 V. @ 4 Amps. **\$7.50**

115 V. 60 Cye. SELSYN High torque. Useful as antenna indicators, etc. **\$5.95** (each \$10.50 pr.)

**Special on . . . POWER SUPPLIES!**

All wired—Ready to use.

PRI—115 V AC

SEC.—540-0-540 V @ 250 Ma.

5.4 & 5 V @ 6 Amps

12 V @ 5 Amps

40 V @ 50 Ma.

6.3 V CT @ 7 Amps

12 Hy Choke @ 300 Ma.

4 10 mfd. 600 V Cap.

3 5U4's **\$21.95**

Min. Order \$3.00—25% with order F.O.B. New York 10 DAY GUAR. PRICE OF MODEL ONLY

**Advance Electronics**

6 West Broadway • New York 2, N. Y. • RECTOR 3-6779

# 1958 INDEX VOLUMES 59-60

As a service to our readers we are again presenting a complete listing of all feature articles which appeared in RADIO & TV NEWS during 1958. We suggest you keep this for reference.

## AMATEUR

**ANTENNAS**

Adding 21 mc. to the Off-Center-Fed Antenna (Minarik, W9GJY) 48 June

Listening to the Satellites (Kunze, W0WVM) 44 Nov.

Putting the Helix to Work (Blair, K6QXW) 66 Nov.

This Month's Cover. 45 Nov.

**HAM GEAR**

Advanced Ham Receiver in Kit Form 64 Dec.

Automatic Tracking Mobile System (Keen, W2CTK) 53 Oct.

Compact 35-Watt Standby Transmitter (Bumbaugh, W6HL) 59 June

"Control Master"—A Crystal Dialing Unit (Brizendine, W4ATE) 49 Mar.

Frequency Meter Doubles as SSB and C.W. Detector (Longerich, DL4RX/W2GOY) 100 Sept.

Linear Amplifier for SSB Exciters (Marriner, W6BLZ) 69 Nov.

"Mighty Milli-watt" (Stoner, W6TNS) 51 Sept.

"Muscle Mouse"—A Compact 50-Watt Transmitter (Stanley) 54 Feb.

Shunt-Fed Modulation for Your AM Transmitter (Gencille, W3FEP) 46 Aug.

Simple Transistor Keyer Unit (McCarthy, K6EAW) 39 Apr.

6- and 10-Meter Transistorized Amateur Receiver (Holte, W5YR) 149 Dec.

SSB Exciter Attenuator Pads (Hyman, W9VRX) 52 Dec.

30-Watt Transistor Mobile Modulator (Jordan, W9PUK & Prewitt, W9UKT) 42 Jan.

Transistorized Automatic Key (McCarthy, K6EAW) 36 July

Transistorized Code Oscillator (McDonald) 47 May

Two-Band V.H.F. Converter (Taylor, W8NAP) 60 July

Zero Clipper (French, W1JKZ) 40 May

**MISCELLANEOUS**

Army MARS Net Resumes Technical Broadcasts. 91 Sept.

Far East Ham Convention on Guam 110 Feb.

Modern Ham Shack. 100 Feb.

1957 Ham of the Year. 96 Apr.

Receiving & Recording Satellite Signals (Dearborn) 138 Dec.

Using Your Bug Right! (Dorsey, ex-W4KXX) 111 Sept.

## AM-FM

**RECEIVERS**

FM Tuner Kit Features Novel "Front End" 56 June

Improving Your FM Tuner (Bernard) 54 Sept.

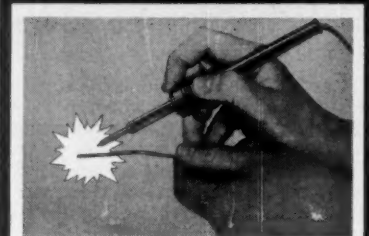
New G-E FM Detector (Burns) 80 June

Simple Hi-Fi AM Tuner (Morris) 33 Aug.

Transistorized FM Receiver (Najork) 115 May

# WELD-SOLDER ANYTHING FAST!

THE WORLD'S MOST POWERFUL MINIATURE SOLDERING IRON MENDS AND REPAIRS 1001 ITEMS IN A JIFFY



AMAZING "MIGHTY-MITE SOLDER-ETTE" SAVES HUNDREDS OF DOLLARS IN REPAIRS... FIXES EVERYTHING FROM TV SETS TO TOYS! You can save up to \$25.00 the very first time you use your Solder-Ette. Stop paying expensive repair bills. Precision engineered, Solder-Ette permits you to make thousands of household and shop repairs in a jiffy! Repair appliances, TV & Radio Sets, lamps, electrical wiring, motors, toys, jewelry, etc. Easy-grip handle is heat-proof. Modern design permits use in even most crowded spots. Copper alloy tip screws into super-heat element, permitting easy replacement. Complete with quality line cord. 25 Watts 110-120V AC/DC. FULLY GUARANTEED. If not delighted return within 10 days for full refund. Send \$2.98 Postpaid plus 25¢ for PP & handling. Sorry, no C.O.D.

Tube Wholesalers Co., Dept. S-RT  
Box 61, Baldwin, L.I., N.Y.

**CENTER ELECTRONICS**

ALWAYS ON THE SPOT WITH SPECIALS

**STEPHENS 206 AXA**

15" 2-Voice Coil Coaxial Speaker  
Freq. response 20-20,000 cps—BRAND NEW

Audiophile Net **CENTER \$99.50**  
\$162.50 PRICE

Mail Orders 25% deposit, Balance COD

**GET OUR SPECIAL PRICES ON YOUR HI-FI REQUIREMENTS**

**CENTER ELECTRONICS CO., INC.**

Dept. N-1, 72 Cortlandt St., New York 7

**ELECTRONICS**

**PREPARE FOR A GOOD JOB!**

**BROADCAST ENGINEER**

**RADIO SERVICING AUTOMATION**

TELEVISION SERVICING  
BLACK & WHITE—COLOR

APPROVED FOR VETERANS AND SURVIVORS OF VETERANS

BUILDING AIR CONDITIONED  
SEND FOR FREE LITERATURE

**BALTIMORE TECHNICAL INSTITUTE**

1425 EUTAW PLACE, BALTIMORE 17, MD.

Transistor Superregen FM Tuner (Fisk) .....	60 Nov.
Russian Receiver Powered by Kerosene Lamp .....	37 Aug.

#### SERVICING

Alignment of Midget Radios (Johnson) .....	39 Jan.
Basic Facts on Mobile Radio (Lytle) .....	43 Apr.
Breakdowns in AM IF Transformers (Doyle) .....	92 May
Servicing Communication Receivers (Van Suthpin) .....	46 Mar.
System Maintenance in Two-Way Mobile (De Bra) .....	34 June
Troubleshooting AM-FM Combinations (Johnson) .....	52 July
Two-Way Mobile Service Business (De Bra) .....	62 Feb.

#### COMPONENTS

Recharging and Storing Dry Batteries .....	116 Feb.
--	----------

#### BOOK REVIEWS

Audio Design Handbook (Hartley) .....	154 Sept.
Audio Amplifiers and Associated Equipment (Sams Staff) .....	168 Mar.
Automatic Record Changer Service Manual (Sams Staff) .....	150 May
Auto Radio Removal (Sams Staff) .....	122 June
Basic Electricity (Marcus) .....	122 Aug.
Basic Electricity (Turner) .....	165 Jan.
Basic Electricity for Communications (Timble & Ricker) .....	143 Dec.
Basic Television (Schure) .....	150 May
Basics of Digital Computers (Murphy) .....	132 Nov.
Care and Repair of Hi-Fi (Feldman) .....	126 July
Closed-Circuit Television Systems (RCA Service Co. Staff) .....	141 Dec.
Closed Circuit TV System Planning (Mayers & Chipp) .....	164 Jan.
Color TV Principles and Practices (Electronic Components Div., General Electric Co.) .....	126 July
Commercial Radio Operator's License Guide—Elements 1 & 2 (Schwartz) .....	164 Jan.
Commercial Radio Operator's License Guide—Element 3 (Schwartz) .....	126 July
D-C Circuit Analysis (Schure, ed.) .....	142 Dec.
Electronic Hobbyists' Handbook (Turner) .....	122 Aug.
Electronic Measuring Instruments (Banner) .....	143 Dec.
Electronic Puzzles and Games (Mandl) .....	101 Oct.
Electrostatics (Schure, ed.) .....	142 Dec.
Electron-Tube Circuits (Seely) .....	133 Nov.
Elements of Magnetic Tape Recording (Haynes) .....	165 Jan.
Elements of Tape Recorder Circuits (Burststein & Pollak) .....	166 Mar.
Feedback Theory and Its Applications (Hammond) .....	123 June
F.M. Radio Servicing Handbook (King) .....	100 Oct.
Foundations of Wireless (Scroggie) .....	126 July
Fundamental Principles of Transistors (Evans) .....	123 June
High Fidelity Simplified (Weiler) .....	173 Feb.
High Quality Sound Reproduction (Moir) .....	101 Oct.
How to Read Schematic Diagrams (Mark) .....	166 Mar.
Impedance Matching (Schure, ed.) .....	142 Dec.
Industrial Control Circuits (Platt) .....	122 Aug.
Industrial Electronics Handbook (Kretzmann) .....	166 Mar.
Low-Cost High-Quality Amplifier (Baxandall) .....	122 June
Magnetic Recording Techniques (Stewart) .....	142 Dec.
Mechanics (Efron) .....	143 Dec.

December, 1958



LEO I. MEYERSON, W8CFQ

## LEO SAYS: "HAMMARLUND HAS IT" AND SO DOES WORLD RADIO LABORATORIES "The World's Largest Distributor of Amateur Radio Products"

The Remarkable

### HQ-170

#### TRIPLE CONVERSION SSB AMATEUR RECEIVER

All the best features of the finest SSB converters, plus the best features of the finest amateur receivers wrapped up in a single, outstanding receiver. Covers the 6, 10, 15, 20, 40, 80 and 160 meter amateur bands. Separate vernier tuning. Dual and triple conversion 17-tube superheterodyne. Adjustable 60 db notch filter. IF passband tuning. Adjustable AVC.

\$35.90  
DOWN

\$20.50  
per mo.

or \$359.00 Amateur Net.

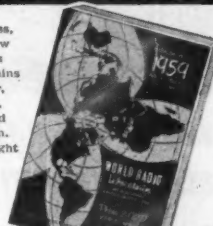
Telechron clock-timer, \$10 extra.

Send for brochure on the  
Complete Hammarlund Line!



#### And Send for Your Brand New FREE 1959 CATALOG

Just off the press, this colorful new catalog contains hundreds of bargains for the amateur, hi-fi enthusiast, experimenter and dealer-serviceman. Send for yours right now.



Please send me Free Catalog . . . and complete info on the Hammarlund line.

RTV-12

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY & STATE: \_\_\_\_\_

### "NO NOISE" BIG 3 Beware Of Cheap Substitutes!



#### NO-NOISE NEW RUBBER COAT SPRAY

- Insulates where soiled
- Protects indurately
- Prevents arcing, shorting, corrosion
- Waterproofs thoroughly
- Non-inflammable
- Contains no plastic

6 Oz. Spray Can  
**\$3.25**  
Not To Servicemen

#### NO-NOISE VOLUME CONTROL and CONTACT RESTORER

- Cleans
- Lubricates
- NOT A CARBON TET SOLUTION

1 Oz. Bottle 6 Oz. Spray Can  
**\$1.00 \$2.25**  
Not To Servicemen



#### NO-NOISE TUNER-TONIC With PERMA-FILM

- Economical—a little does a lot.
- Cleans, lubricates, restores all tuners, including water type.
- Non-toxic, non-inflammable
- Use for TV, radio and FM

6 Oz. Aerosol Can  
**\$3.25**  
Not To Servicemen

ELECTRONIC CHEMICAL CORP.  
813 Communipaw Avenue Jersey City 4, N. J.

### KEEP CANDEE HANDY!

#### MODEL 80 MEASUREMENTS CORPORATION SIGNAL GENERATOR

Operates on 115 VAC 60 cycles. Freq. coverage, 2-400 MC. Amplitude modulated 0-30% @ 400 or 1,000 cycles. RF output, 1 to 100,000 microvolts. Output impedance 50 ohms. Provision for external modulation and external pulse. Excellent cond. A terrific buy at this fabulous low price. Only . . . **\$300.00**

#### MODEL 84 MEASUREMENTS CORP. SIGNAL GEN.

Same as above, except frequency coverage is 300-1,000 MC. Excellent condition. **\$250.00**  
Offered first time at only . . . **\$225.00!**  
SAVE BY BUYING BOTH MODELS for only \$525.00!

#### APT-5 TRANSMITTER

Has lighthouse tube 3C22 oscillator in tunable cavity modulated by two type 820B tubes powered by 931 noise generating photocell. Output approx. 30 W. CW @ 115 V, 400 cycles. **\$49.95**  
Excellent cond.

#### ART-13 COLLINS TRANSMITTER

Removed from aircraft so you know it's good—and sold at lowest price ever! 10-channel auto-tune or manual. 2-18.1 MC for ham rig with 813 final. Output 60-100 W. CW or modulated. Crystal calibrated for **\$129.95**  
VFO. Includes dynamotor. Excellent. Only

#### AN/APN-9 LORAN SYSTEM

Used in ships and aircraft. Determines position by radio signal from known transmitters. Accuracy to within 1% of distance. Com. **\$88.88**

#### APN/48 LORAN EQUIPMENT

Marine or air. Long range navigational gear to determine position of ship or plane up to 1200 miles from base. Complete with scope, receiver, tubes, crystals, rack and plugs. **\$39.95**  
ONLY

#### BC-603 FM RECEIVER

27-39.0 MC. 10 push-buttons for channel selection. Continuous tuning. Sensitivity circuit. Complete with tubes, speaker, (less dynamotor). **\$19.95**  
motor). Excel. \$14.95. NEW . . .

#### BC-603 FM RECEIVER

Same as above except freq. is 20-27.0 MC. Excellent condition. **\$6.95**  
12 V. DM-34D DYNAMOTOR: for above. **\$3.95**  
110 VAC POWER SUPPLY: for above. Just plug in. No conversion needed. **\$11.95** In Kit Form. **\$7.95**

All items FOB, Burbank, Calif., subject to prior sale. In Calif. add 4%. Min. order \$3.95.

**J. J. CANDEE CO.** Dept. R  
509 No. Victory Blvd., Burbank, Calif.  
Phone: Victoria 7-3053



take it from a  
hi-fi dealer—



## KNOW YOUR HI-FI EQUIPMENT BEFORE YOU BUY!

Any dealer will confirm it. The hi-fi fan who makes the smartest buy usually knows his equipment, prices and specifications before he even steps into a store.

Where can you get such helpful information? It's available in the **HI-FI DIRECTORY & BUYERS' GUIDE**—the world's most complete reference for the high fidelity fan. Virtually every piece of hi-fi equipment manufactured is listed in the 1959 **HI-FI DIRECTORY & BUYERS' GUIDE**—complete with prices, specifications and illustrations.

This year's edition is bigger than ever—180 pages of useful information, arranged conveniently into sections on tuners, amplifiers and preamps, record players, changers, turntables, tone arms, cartridges, tape recorders, loudspeakers and systems, enclosures and equipment cabinets.

In addition to listings, the **HI-FI DIRECTORY & BUYERS' GUIDE** contains helpful articles and features on what to look for, how to buy, advantages and disadvantages of different models, how to judge quality and recognize a bargain. Whether you're a hi-fi beginner or a veteran audiophile, this publication is worth its weight in diamond styli to you. Yet it costs

only \$1.00. The **Hi-Fi Directory & Buyers' Guide** is now on sale—be sure to pick up a copy at your favorite newsstand, hi-fi salon or electronics parts dealer.



Ziff-Davis Publishing Co.,  
434 S. Wabash Ave., Chicago 5, Ill.

Most-Often-Needed 1958 Radio Diagrams and Servicing Information (Beitman, ed.).....	122 Aug.
Most-Often-Needed 1958 Television Servicing Information (Beitman, ed.).....	168 Mar.
Nuclear Energy (Efron).....	143 Dec.
Official Registry of Radio Systems In the Transportation Services (Communication Engineering Book Co.).....	154 Sept.
Pin-Point Color TV Troubles in 15 Minutes (Manly & Coyne Staff)...	132 Nov.
Portable Transistor Receiver (Amos).....	122 June
Profitable Television Troubleshoot- ing (Anthony).....	164 Jan.
Radio Amateur's Handbook (ARRL Staff).....	126 July
RCA Victor 1957-58 Television Servicing Information (Beitman, ed.).....	164 Jan.
Receiving Aerial Systems (Davidson).....	172 Feb.
Repairing Hi-Fi Systems (Fidelman).....	172 Feb.
Repairing Portable and Clock Radios (Crisses & Gnessin).....	100 Oct.
Selection and Application of Metal- lic Rectifiers (Jackson).....	150 May
Servicing Hi-Fi and Associated Audio Equipment (Sams Staff)...	141 Dec.
Servicing TV Sync Systems (Dines).....	172 Feb.
Single Sideband for the Radio Amateur (ARRL Staff).....	134 Nov.
Sound (Efron).....	166 Mar.
Stereophonic Sound (Crowhurst) ..	164 Jan.
Surplus Communication Equipment and Its Use in Civil Defense Or- ganizations (FCDA).....	138 Apr.
Tape Recorder Manual, Vol. 1 (Sams Staff).....	150 May
Tape Recorder Manual, Vol. 2 (Sams Staff).....	133 Nov.
Techniques of Magnetic Recording (Tall).....	166 Mar.
Television in Science and Industry (Zworykin, Ramberg, & Flory)...	122 June
Television Interference, Its Causes and Cures (Rand).....	150 May
Television Tube Location Guide (Sams Staff).....	138 Apr.
Transistor Manual (Semiconductor Products Dept., General Electric Co.).....	133 Nov.
Transistor Physics and Circuits (Riddle & Ristenbatt).....	140 Apr.
TV and Radio Tube Troubles (Heller).....	151 May
TV Distribution Systems and Antenna Techniques (Beever)...	154 Sept.
Ultra High Frequency Performance of Receiving Tubes (Benham & Harris).....	138 Apr.
Vacuum Tube Rectifiers (Schure)...	122 June
What Makes Guided Missiles Tick! (Kemp).....	122 June

## BUSINESS MANAGEMENT

Are You in a Rut? (Leonard)...	62 Apr.
"Collective Security" for Service (Leonard).....	60 Oct.
Don't Blame "Competition" (Leonard).....	54 Aug.
Mac's Service Shop (Frye).....	74 Jan.
Mac's Service Shop (Frye).....	68 Feb.
Mac's Service Shop (Frye).....	72 Mar.
Mac's Service Shop (Frye).....	68 Apr.
Mac's Service Shop (Frye).....	64 May
Mac's Service Shop (Frye).....	62 June
Mac's Service Shop (Frye).....	58 Aug.
Mac's Service Shop (Frye).....	68 Sept.
Mac's Service Shop (Frye).....	64 Oct.
Mac's Service Shop (Frye).....	68 Nov.
Mac's Service Shop (Frye).....	66 Dec.
"Musts" for Business Growth (Leonard).....	62 Nov.

## LIBERTY—MAIL ORDER— T. V. PICTURE TUBES

AMERICA'S BEST... AMERICA'S LOWEST PRICE  
GUARANTEED FOR ONE (1) FULL YEAR  
LICENSED BY... RCA... DUMONT...

10BP4	\$7.50	17CP4	\$16.50	21AMP4	\$18.95
12LP4A	8.75	17GP4	15.50	21AU	
14B/CP4	9.50	17H/LP4	13.50	AVP4	19.95
16AP4	14.95	17OP4	11.50	21EP4	14.50
16DP4	13.50	17TP4	16.50	21F/KP4	15.75
16GP4	15.95	19AP4	17.75	21MP4	19.95
16K/LP4	10.50	20CP4	13.50	21YP4	15.50
16R/WP4	10.50	20HP4	15.00	21WP4	14.75
16T/ZP4	10.50	20MP4	14.00	21ZP4	15.00
17AVP4	13.50	21AP4	19.95	24CP4	26.00
17BP4	10.95	21AL/ATP4	19.95	24DP4	28.00

For Aluminized Tubes Add \$4.00. Prices are subject to change without notice. Write for price on non-listed tubes. All prices FOB Wallingford, Conn. Prices include duty. Send \$5.00 deposit when old tube due is not returned. Deposit refundable at time of return of dud. Dud must be returned prepaid. We ship anywhere, domestic, foreign, export.

TERMS: 25% WITH ORDER—BALANCE C.O.D. 10% reduction for orders of 6 or more tubes.

**LIBERTY TUBE CO.**  
Dept. CRT HALL AVE., COR. CHERRY ST.  
WALLINGFORD, CONN. COLONY 9-8038

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1938, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF RADIO & TV NEWS published Monthly at Chicago, Illinois for October 1, 1958

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Ziff-Davis Publishing Company, 434 So. Wabash Ave., Chicago 1, Ill.; Editor, William Stocklin, One Park Avenue, New York 16, N. Y.; Business manager, Howard Stoughton, Jr., One Park Avenue, New York 16, N. Y.

2. The owner is: Ziff-Davis Publishing Company, 434 So. Wabash Ave., Chicago 5, Ill.; Estate of William B. Ziff, One Park Avenue, New York 16, N. Y.; A. M. Ziff, One Park Avenue, New York 16, N. Y.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication, sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

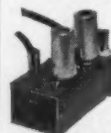
H. STOUGHTON, JR., business manager.

Sworn to and subscribed before me this 18th day of September, 1958.

(SEAL) WILLIAM PROEHMER, Notary Public.  
(My Commission expires March 30, 1960)

## CRYSTAL CONTROLLED CONVERTERS

POLICE • FIRE • COMMERCIAL



For use with  
12 V. Transistor type  
car radios—  
30-50 MC.  
**\$24.50**

Can be self installed in seconds. Other models for 162-162 MC available. Also complete line of conventional powered converters, tuners and receivers.

A practical converter for emergency use with powered home or auto sets. Tuneable over 8 MC. 26-50 MC or **\$13.95** 108-174 MC.....

Also available crystal controlled up to 64 MC \$18.95.



WRITE FOR LITERATURE

**KUHN ELECTRONICS**

20 GLENWOOD CINCINNATI 17, OHIO

RADIO & TV NEWS

New Look in TV Service (Leonard)	54 Dec.
Operating Costs—Fact and Fantasy (Leonard)	54 July
Realistic Profit Margins (Leonard)	64 Sept.
Service and Public Relations (Leonard)	61 Jan.
Service Business Budgets (Leonard)	56 May
Service Dealers and Set Sales (Leonard)	58 Feb.
Service Salesmanship (Leonard)	56 Mar.
Tube Makers Fight Counterfeiting	127 Dec.
Your Business Telephone (Leonard)	58 June

## GENERAL

### COMPUTERS

Basic Binary Counting Circuits (Bukstein)	48 May
Basic Decade Counters (Bukstein)	34 Aug.
Basic Electronic Counting (Bukstein)	122 Mar.
Basics of Preset Counters (Bukstein)	46 Nov.

### CONSTRUCTION PROJECTS

"D.C. Variometer"—an Ultra-Versatile Wide-Range Power Supply (Tooker)	63 Apr.
Designing a Telephone Amplifier (Todd)	55 July
"Electro-Melodeon" (Smith, W8VVD)	61 Sept.
Electronic Photoflash (Graham)	47 Feb.
Gremlin Sentry—an Automatic Control Switch (Landis)	49 June
"Photorythmicon"—Dancing Lights (Wortman)	50 Aug.
Picture-Frame Transistor Set	126 Oct.
Slave Flash Trigger (Winklepleck)	33 June
Slide-Projector Fade Control (Lingel)	115 Nov.
Stabilized Stroboscope (Dollens)	49 Jan.
Subminiature Transistor Power Supply (Tooker)	73 Jan.
Transistor Electronic Buzzer (Turner)	66 Sept.
Transistorized Electronic "Accordion" (Garner, Jr.)	53 May

### IGY

Five Months of IGY Disclose Space Secrets	159 Mar.
FM Receiver Conversion for U. S. Satellite Signals (House)	160 Mar.
Giant Telemetry Antenna	32 Aug.
Ham Participation in IGY (Editorial)	8 Jan.
New Transmitter for U. S. Satellite Radio Astronomy and the Jodrell Bank Radio Telescope (Lovell)	35 Feb.
Receiving "Explorer's" Radio Signals (Ripani, W9JAG)	98 May
Receiving U. S. Satellite Signals (Matthews)	35 Mar.
Report on the Soviet Earth Satellite	124 Feb.

### MISSILES & MILITARY

Four Hundred and Sixty-six Years. (Editorial)	8 Dec.
Miss-Distance Indicator Improves Navy Target Scores	122 Apr.
Missile Master Air Defense System	54 Mar.
Radio Communication Terminal Carried by Air	144 Feb.
Rocket-Rider Radio	130 Sept.
Scatter Communication (Johnson, M. P.)	29 Aug.
Ultra-Modern Signal Corps Communications Center (Schauers)	40 Apr.
World's Most Accurate Radar	41 Sept.

### PUZZLES

Circuitry Crossword (Comstock)	109 Aug.
Electronic Crossword (Gill)	144 Sept.
Hi-Fi Anagram (Comstock)	105 July
Radio Crossword (Gill)	135 Oct.
Radio-TV Parts Puzzle (Comstock)	167 Feb.

December, 1958



# LAMPKIN METERS + FCC LICENSE = HIGHER INCOME!

Over a million mobile-radio installations need regular, high-grade maintenance and measurements per FCC regulations!

This means money... steady income... right in your own area.

**LAMPKIN METERS are the preferred test equipment!**

Send for free booklet... "HOW TO MAKE MONEY IN MOBILE-RADIO MAINTENANCE". No charge... just use coupon below.



**LAMPKIN 105-B MICROMETER FREQUENCY METER**

Range 0.1 to 175 mc. (to 3,000 mc. by checking multipliers). Gives error from assigned frequencies. VHF CW signal generator. Weight 13 lbs., width 13". \$220.00



**LAMPKIN 205-A FM MODULATION METER**

Reads peak FM voice deviation  $\pm 12.5$  kc. and  $\pm 25$  kc., tunes 25-500 mc. in one band. Relative field-strength meter. Speaker. Jack for oscilloscope. Weight 13 lbs., width 12". \$240.00.

**LAMPKIN LABORATORIES, INC.**  
BRADENTON, FLORIDA

LAMPKIN LABORATORIES, INC.  
MFM Division, Bradenton, Florida

At no obligation to me, please send  
☐ Free booklet ☐ Data on Lampkin meters.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

## STAMP OF APPROVAL!

# QUIETROLE

Only Known Merit marks a product as the "BEST"

for quieting Noisy Controls and Switches  
QUIETROLE produces results superior to any other product. That's why it's known as the "Best" and that's why more users prefer it to any other. It's the dependable Original product of its kind... a first in the industry.

## QUIETROLE Spray-Pack

or the QUIETROLE Bottle with the Eye Dropper Cap

QUIETROLE offers you both types of containers. Either way assures you of the same un-failing results that QUIETROLE is known for.

The Lubricant Cleaner of the Electronic World. Tailored for the industry by over 15 years of authentic research, plus 4 years of rigid and exacting tests before marketing.

In 2 oz. bottle with dropper and 6 oz. QUIETROLE SPRAY-PACK

Ask for QUIETROLE and be sure you get it!

manufactured by  
**QUIETROLE COMPANY**  
Spartanburg, South Carolina

## SURPLUS BUYS

**RCA OSCILLOSCOPE MODEL 155**

This scope is a highly efficient conventional 8" oscillograph. Operates from 115VAC-60 cycles. The perfect instrument for service, labs, schools, industry, experimenter. All features of high priced lab scopes available to you at less than the price of a kit. **SIZE: 10" x 7 1/4" x 14". Wt. 23 lbs.** **FOB N. Y. \$29.95**

**ARC-5 XMTR—3-4MC—Exc.** .....\$5.95  
**ARC-5 XMTR—5.3-7MC—Exc.** .....\$6.95  
**OIL CONDENSER—8-8.8 Mfd.—600VDC—with brackets compact (Tobe or Nat'l) New.** .....\$2.50  
**MINIATURE METER—1" Sq. Weston, Etc.—0-100 Microamps. Hr. New. Orig. Scale. Now only \$3.95**

**OIL CONDENSERS**

1 Mfd-600V....	.25	1 Mfd-600V....	\$.50
2 Mfd-600V....	.25	2 Mfd-1000VDC....	.75
.05-.05 600V....	.25	4 Mfd-1000VDC....	1.50
10 Mfd-600V....	1.00	8 Mfd-1000VDC....	.75

**METERS**

2" Rd. 500 Microamps....	\$3.29	3" Rd. 300 VDC....	\$3.75
500 Milliamps....	2.95	1 Amp RF....	4.95
1 Ampere DC....	2.95	50 Amp AC (5AFS)....	4.95
10 Amps DC....	2.95	140 MMFD VARIABLE APC TYPE (Hammar.)	
39 Plate—3/4" Shaft....	3	for \$2.00	

**SENSITIVE MICROAMMETER Ruggedized—0-100—New 3"** .....\$5.95

**XFORMERS ALL 115V—60CY. PRI.**

T1—2.5V—10A—10KV—Insul.	.....\$3.95
T2—6.3V—20A—Pri 115/230—Cased	.....\$3.95
T3—5.0V—10A—10KV—Insul.	.....\$3.95
T4—450-0-450—275Ma—5V—SA;	
6.3V—SA—Cased	.....\$5.95
T5—(ARC5 and Surplus Gear) 300-0-300, 100 Mils; 12.6VCT—3A; 12.6V—3A; 5.0V—2A—Compact....	En. \$2.40

**CHOKES**

L1—8Hy—200Ma. (Very Small) Cased.	.....\$1.95
L2—12Hy—500Ma. Cased	.....\$6.95
L3—4Hy—900Ma.	.....\$12.95

**50 FT. AIR FORCE TOWER**—Selling in 10 ft. sections. Pfaff & Kendall #337 solid steel lattice triangular construction. (White or Orange) 29 Lbs. Sides 7"x7"x7". Suitable beams, TV, etc. **FOB N. Y. \$3.95 10 ft. Sect.**

**REX RADIO SUPPLY CO.**  
88 Cortlandt St.  
New York 7, N. Y.  
In the Heart of New York's Radio Row

## ORDER by MAIL and SAVE! TV PICTURE TUBES

10BP4	\$ 7.95	17BP4	\$10.95	21AMP4	\$19.95
12LP4	8.95	17CP4	17.00	21ATP4	20.95
14B/CP4	9.95	17GP4	17.60	21AUP4	20.95
16BP4	14.95	17HP4	13.60	21EP4	14.95
16EP4	15.90	17LP4	13.60	21FP4	15.95
16GP4	15.90	17QP4	11.95	21WP4	17.30
16KP4	10.95	17TP4	19.30	21YP4	15.95
16LP4	10.95	18AP4	19.30	21ZP4	14.95
16RP4	10.95	20CP4	13.90	24CP4	23.95
16WP4	15.20	20HP4	17.95	24DP4	26.95
16TP4	10.95	21AP4	22.10	27EP4	39.95
17AVP4	15.20	21ALP4	20.95	27RP4	39.95

27"—6 month guarantee—all others 1 year. Aluminized Tubes \$5.00 more than above prices. These prices are determined to include the return of an acceptable similar tube under vacuum.

ALL PRICES FOR CHICAGO, ILLINOIS. Deposit required, when old tube is not returned, refundable at time of return. 25% deposit required on COD shipments. Old tubes must be returned prepaid. We ship anywhere.

WRITE FOR COMPLETE LIST.

— **PICTURE TUBE OUTLET** —  
3032 MILWAUKEE AVE.  
CHICAGO 18, ILLINOIS  
Dickens 2-2048

## 2 WAY PORTABLE RADIO SET

Sends—Receives up to 10 miles as shown or hundreds of miles with outside antenna 80 and 40 meter amateur radio bands (various) also Aircraft and Overseas broadcasts (2 to 5 m.) POWERED WITH SELF-CONTAINED PORTABLE RADIO BATTERIES. NO AC PLUG-INS NEEDED! Take it with you everywhere you go—Keep in contact with home, friends, etc. 5 watt crystal controlled transmitter—Sensitive Regenerative Receiver. Send receive switch. We only 3 lbs. Size, only \$34.95. TESTED—PROVED—SIMPLIFIED—PRACTICAL. Full information given on quick easy to get license.



SEND ONLY \$3.00 (bill, etc. not included) and pay postman \$12.95 COD postage on arrival or send \$15.95 for postpaid delivery. Complete kit includes all parts, tools, etc., in a neat cabinet, easy instructions. (Set of batteries—\$2.49; crystal \$1.40). COMPLETELY WIRED AND TESTED. POSTPAID \$15.95. A regular \$49.95 value—Order now before price goes UP. GUARANTEED AVAILABLE ONLY FROM:

Dept. ENT-12 KEARNEY, NEBR.

## STOP MAGNETIC RADIATION

Find the source causing hum and other magnetic interference in tubes, tape recording and playback heads, input transformers, high gain amplifiers and other magnetically sensitive components. Stop these troubles with non-shock sensitive non-retentive Co-Netic shielding foil. Used in numerous commercial and critical military applications. Cuts easily with ordinary scissors, bends into and retains any desired shape. Magnetic Shielding Experimental Kit contains 3 shielding foil strips in these handy sizes: 2"x9½", 2½"x8", 3"x7". Only \$3.60 postpaid. Includes application information.

Magnetic Shield Division  
Perfection Mica Co.

1322 No. Elston Ave. • Chicago 22, Ill.

Enclosed is \$3.60 (check or money order—no cash, please) for Magnetic Shielding Experimental Kit. Please send postpaid.

Name \_\_\_\_\_

Street & No. \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

Radio-TV Units Puzzle (Comstock) ..... 120 Apr.  
Transistor Terminology (Comstock)..... 129 Nov.  
TV Circuits Puzzle (Comstock)..... 125 May

### TUBES & TRANSISTORS

Lazy Tube Cathodes (McCormack & Mackey)..... 48 Dec.  
Transistor Heat Sinks (Penfield, Jr.) 70 Mar.  
Transistors Are Different (Bukstein) ..... 62 Dec.  
Twelve Volts-Heater and Plate (Burgess) ..... 68 Mar.  
Why Tubes Fail Prematurely (Heller) ..... 70 Sept.

### MISCELLANEOUS

All-Electronically Controlled Machine Tool Line..... 110 June  
Behind the Scenes in Publishing (Editorial) ..... 8 Nov.  
Citizens Radio Faces the Future (McKay) ..... 37 Nov.  
Communications in Fire Control (Zitko) ..... 33 July  
Electro-Chemical Elapsed Time Indicator ..... 136 Jan.  
Electroluminescence—Light of the Future (Martin) ..... 35 Jan.  
Electronics at Disneyland..... 39 June  
Electronics In Our Economy (Editorial) ..... 8 Mar.  
Electronic Typesetter to Be Marketed ..... 128 Dec.  
Facsimile Signals Bounced From Meteor Trails ..... 116 Mar.  
Farm Housewife Helps Over Horizon Radio Study..... 98 Apr.  
How Small Can They Get? (Editorial) ..... 10 July  
Industry Responsibility (Editorial)..... 8 May  
"Istor" Story (Graf)..... 144 Nov.  
Magnetic Check for Tools (Jason)..... 112 Sept.  
Micro-Modules—the Ultimate in Miniaturization (Gootée) ..... 48 Sept.  
New Converter Changes Heat to Electricity ..... 157 Feb.  
New Device Reads Written Numerals ..... 127 Feb.  
Radiation Detectors—A Technician's View (Part 1) (Lytel).... 44 July  
Radiation Detectors—A Technician's View (Part 2) (Lytel).... 52 Aug.  
Radio Aids Rescue Operations.... 47 Sept.  
Semiconductor Variable Capacitors (Smith, H. R.)..... 46 Dec.  
Silicon Solar Battery (Renné)..... 37 Dec.  
Solar Powered Display..... 39 Dec.  
Subliminal Ads Tried on TV..... 143 Feb.  
Telephone of the Future (McKay).... 44 Dec.  
This Month's Cover..... 39 June  
This Month's Cover..... 33 July  
This Month's Cover..... 47 Sept.

### HIGH-FIDELITY AUDIO

#### AMPLIFIERS

Basic Feedback Amplifiers (Westphal) ..... 44 Aug.  
Compact Hi-Fi Amplifier (Wortman) ..... 110 Jan.  
Dyna Preamp ..... 69 Sept.  
Hi-Fi 50-Watt ..... 51 July  
KT-300 Preamp ..... 160 Apr.  
Low-Cost Hi-Fi Amplifier (Kaplan)..... 57 May  
"Mark III" ..... 138 Mar.  
70 Watts for Hi-Fi..... 53 Jan.  
70 Watts with KT88's..... 94 June  
"Tiny Tim" Portable P.A. Amplifier (Reed) ..... 99 Dec.  
25-Watt Power Amp..... 65 Sept.  
Upgrading the Hi-Fi Amplifier (Burstein) ..... 50 Mar.

#### CIRCUITS

Audio "Mix-It" Box (Wortman).... 42 Sept.  
Audio Operated Switch (Reed).... 60 Apr.  
Feedback (Klipsch) ..... 140 Mar.  
Is a Loudness Control Necessary? (Hines) ..... 34 July  
RC Filter Tone Controls (Schwan)..... 61 Mar.

shoot for  
home movies  
that look  
professional!

Learn how in the world's  
first HOME MOVIE MAKING  
ANNUAL (prepared by the  
Editors of Popular Photography).

includes:

25 SECRETS FOR SUCCESSFUL MOVIE MAKING  
STEP-BY-STEP PROCEDURE FOR MAKING A MOVIE  
100 IDEAS FOR HOME MOVIES  
HOW TO MAKE AN OLD TIME COMEDY (complete with custard pie!)

HOW TO EDIT, ADD SOUND, WRITE A SCRIPT

COMPLETE DIRECTORY OF MOTION PICTURE EQUIPMENT

**NOW ON SALE only \$1.00**

RADIO & TV NEWS



Simple 3-Channel Mixer (Voss)... 51 Feb.  
Simple Transistor Mixer (Johnson, G.)... 47 July  
3-D Hi-Fi Amplifier (Martin)... 59 July

#### MISCELLANEOUS

FM Station Sends Three Programs At One Time... 141 Apr.  
"High-Power" Portable Paging System (Garner, Jr.)... 45 June  
Hi-Fi in the Home... 59 Jan.  
Indoor Public Address Systems (Crowhurst)... 54 Nov.  
Magnetic Recording-1914 Style (Tremaine)... 90 July  
Outdoor Public Address Systems (Crowhurst)... 29 June  
Test Report—Hi-Fi Components... 156 Sept.  
Which Way to High Fidelity?—Buy Now or Later? (Crowhurst)... 44 Feb.

#### PHONO

Automatic Motor Control for Hi-Fi Turntables (Andrews)... 86 July  
Automatic Phono With Transistor Amplifier (Beish)... 55 Dec.  
Loading the Phono Cartridge (Burstein)... 40 Nov.  
Novel Features Highlight New Record Changer... 120 Jan.  
"Ultra-Linear II"... 120 Oct.

#### SERVICING

Additional Notes on "Testing FM Tuners at Home"... 130 Jan.  
Approach to Hi-Fi Service (Fidelman)... 57 Oct.  
Field Hi-Fi Service (Fidelman)... 69 Apr.  
Removing Hi-Fi System Resonances (Southworth)... 44 Sept.  
Testing FM Tuners (Buchsbbaum)... 50 May

#### SPEAKERS-HOUSINGS

All About Audio and Hi-Fi—Speaker Power and Efficiency (Part 8) (Briggs)... 56 Feb.  
All About Audio and Hi-Fi—Speaker Mounting (Part 9) (Briggs)... 64 Mar.  
Electrostatic Loudspeakers—Questions and Answers (Philbrook)... 36 June  
Speakers for Stereo (Burstein)... 29 July  
Testing the Properties of Loudspeakers (Smith, J. L.)... 39 Aug.  
"Ultra-Linear" Hi-Fi Speaker Systems (Sioles)... 58 Jan.  
Weakest Link—First or Last? (Burstein)... 46 Apr.

#### STEREO

All-Linear Stereo Disc Demonstrated... 125 Apr.  
Behind the Stereo Scene... 42 Oct.  
Converting to Stereo Disc... 44 Oct.  
Cover Story... 43 Oct.  
Magic of Stereophonic Sound (Garner, Jr.)... 42 Mar.  
New Compatible Stereo Disc (Snitzer)... 53 June  
Pickup Cartridges for Stereo (Crowhurst)... 35 Oct.  
RCA's 4-Track Stereo Cartridge... 80 Aug.  
Simple Stereo Amplifier (Timmerman)... 49 Oct.  
Stereo Boom Ahead (Editorial)... 8 Aug.  
Stereo Broadcasting—Now and in the Future (Snitzer)... 65 Oct.  
Stereo Control Center (Flores)... 56 Jan.  
Stereo Control Center... 38 July  
Stereo Control Unit... 43 Aug.  
Stereo Disc (Editorial)... 8 Apr.  
Stereo Disc Recording Methods (Minter)... 66 Oct.  
Stereo Glossary (Burstein)... 68 Oct.  
Stereo-master 130... 48 Oct.  
Stereophonic Cartridge Directory... 37 Oct.  
Stereo Tape Directory... 46 Oct.  
Stereo Tape or Disc? (Editorial)... 8 Oct.

Stereo—Tape or Disc? (LeBel)... 40 Oct.  
Varied Program Available on Stereo Discs... 112 Oct.

#### TAPE RECORDING

Adding a Stereo Tape Head and Preamp (Gicca)... 51 Apr.  
Adding a VU Meter to the "Outboard" Amplifier (Snader)... 106 Nov.  
Electronic Level Indicators for Tape Recorders (Burstein)... 42 Dec.  
Mac's Service Shop (Tape Recorder Tips) (Frye)... 62 July  
Measure That Flutter (Walter)... 60 Dec.  
Measuring Tape Recorder Wow and Flutter (Graham)... 40 Jan.  
Microphones for Tape Recorders (Crowhurst)... 43 May  
"Outboard" Equalizer-Bias Amplifier for Tape Recording (Snader)... 69 Jan.  
Playback Standardization for Tape Amplifiers (Burstein)... 69 Feb.  
Reducing Tape Recorder Noise and Hum (Burstein & Pollak)... 57 Sept.  
Transistor-Tube Tape Preamp (Jones)... 48 Aug.  
What Do You Know About Recording Tape? (Hard)... 111 Feb.

#### TELEVISION

**ANTENNAS**  
Choosing the Right Antenna... 37 Sept.  
Make More \$\$ On TV Antenna Replacements... 56 Aug.  
Multi-Set TV Installations: Problems & Principles (Part 1) (Beever)... 51 Nov.  
Multi-Set TV Installations: Problems & Principles (Part 2) (Beever)... 49 Dec.  
No Time for Makeshifts (Editorial)... 8 Sept.  
Parabolic Antenna for U.H.F. TV (Harris & Matern)... 50 July  
Rhombic Antennas for TV (Cooper, Jr.)... 64 Feb.

#### COLOR

Color Case History: 3.58-mc. Oscillator Failure (Smith, W. J.)... 55 Aug.  
Color TV Programs on Tape... 155 Jan.  
How to Test and Adjust Chroma Circuits (Middleton)... 66 Jan.  
Practical Color TV for the Technician (Part 6) (Kleidon)... 62 Jan.  
3-D Color TV for the Future? (Snitzer)... 39 May  
3 Dimensional TV System (Mengle)... 45 Oct.  
Video Color Converter "Pre-viewed" by Long Distance Phone... 148 Feb.

#### MISCELLANEOUS

Airborne Closed-Circuit Television... 95 May  
All-Transistor TV Set... 136 Apr.  
Closed-Circuit TV (Shea)... 35 May  
Complete TV Remote Control (Peters)... 55 Apr.  
Does Licensing Work? (Editorial)... 8 June  
Eye for an Eye... 37 May  
How the Videotape Recorder Works (Roizen)... 48 Nov.  
New CRT Changes Philco TV Design... 50 Sept.  
New Silicon and Germanium TV Rectifiers (Buchsbbaum)... 39 Feb.  
New TV Front End Designs (Buchsbbaum)... 65 May  
New Westinghouse TV Circuits... 54 Jan.  
1958 Tube Inventory for Service Shops (Barlowe)... 152 Apr.  
Role of the Service Association (Editorial)... 8 Feb.  
Service Association of the Month... (MARTS) 100, June; (ARTSNY) 80, July; (NATESA) 82, Aug.; (ESA, Detroit) 92, Sept.; (TESA-RTTA, Fort Smith, Ark.) 140, Oct.; (Alameda County Assn.) 116, Nov.  
(Continued on page 158)



## XMAS SURPLUS !!

**BC 604 TRANSMITTER**  
29-28 MC FM Tank Transmitter Crystal Controlled. Push button Timing. Convert for 10 meters or use for parts. Complete with all tubes.  
**ALL NEW... Ea. \$4.95**

**POLAR RELAY**  
Plug-in Type #255 A. Ideal for Teletype use. Ultra Sensitive coil with adjustable contacts.  
**With removable cover, used Exp. Cond. Ea. \$2.50**

**AIRCRAFT BATTERY**  
12 Volt, 34 Amp. Hour. TYPE AN-3153 Completely Enclosed with removable top. Use for All Light Aircraft. All Unused—DRY CHARGED. New Surplus.  
**Special... Ea. \$12.50**

**6 VOLT WET CELL**  
6 Volt 2 Amp. Hours Wet Cell Battery. Dimensions 3 1/2" x 1 1/2" x 1 1/2". Type NT-6 Ideal for all Model Hobby Work—Boats, Cars, Trains, Etc.  
**ALL NEW... Dry Charged... Ea. \$1.95**

**TELESCOPIC ANTENNA**  
Type AN-29C 13 Ft. Telescoping Section Antenna. 12 Brass Sections which fold down to 18". Ideal for mobile or portable use.  
**ALL NEW... Ea. \$2.50**

**WHIP ANTENNA**  
10 Sections, each 1 foot long which plug into each other to make a 10 foot whip. Ideal for mobile or portable use.  
**ALL NEW... Ea. \$1.95**

**TYPE TS-10 SOUND POWER PHONES**  
Use these phones without any external or internal voltage supply. Two of them. Use for TV installation, house to house or house to garage.  
**Exe. Cond. Lowest price in years. Per Pair \$15.95**

**PROP PITCH MOTORS**  
For your Beam Antenna: 20 Volt to 32 Volt. A.C. or D.C. 1/2 H.P. Motor: 1 1/2 RPM Gear Reduction, 7000 to 1. Used. Good Cond.  
**Each \$16.95**

See our previous ad for Special Surplus Items.  
All prices F.O.B. S. F., Calif. Calif. orders add 3% Sales Tax. 20% Dep. on all C.O.D.'s. Purchases under \$5.00 send full amount. Items subject to prior sale.

### STANDARD SURPLUS

1230 Market St., San Francisco 3, Calif.  
Telephone HElock 1-3106

## NEW! IMPROVED!

# SENCORE

TRC4

## TRANSISTOR CHECKER

Another Sencore Time-Saver

Only tester that checks car radio power transistors

**NOW CHECKS:**

- ★ Transistors for opens, shorts, leakage and current gain. Includes new gain test on power transistors.
- ★ Crystal Diodes checks forward to reverse current ratio on all diodes.
- ★ Selenium Rectifiers checks forward and reverse currents.

Controls are accurately set for each transistor by referring to replaceable set-up chart on rear. Test leads or socket provides for fast hook-up.

See your parts distributor.



SIMPLE TO OPERATE

ONLY \$17.95

Dealer Net

Cannot become obsolete. Approved by leading manufacturers.

Mfg. by

SERVICE INSTRUMENTS CORP.

171 OFFICIAL RD., ADDISON, ILL.

Cut out this ad now for further information

## New! HAM GEAR BRAND NEW STOCKS

Following items all are in Factory-Sealed Cartons. Latest Serial Nos. We are Authorized Factory Distributors for all the following lines—Other items in Stock—Write

- Hammarlund Receivers—HQ-100 Receivers  
HQ-110 Receivers...Net \$249—HQ-160 receivers...Net \$379.  
HQ-170 Receivers...Net \$359—S-100 Hammarlund Matching Speaker...Net \$14.95.
- National Co. Receivers—NC-60.....\$ 5.95
- Geloso—Ham Receiver—G-209.....\$299.50
- Geloso—Ham XMITR—G-212/TR.....\$249.50
- Geloso—Portable Tape and Stenotype Recorder, Model G-255SP only 7½ lbs.—Only 5¼" x 5½" x 9¼" (Write for Brochure) \$179.95
- Vocaline—Circuit's Band Transceivers  
Model JRC-400 \$69.75 each, \$139.50 per pair  
Model JRC-425 \$99.75 each, \$199.50 per pair
- E. F. Johnson Co.—Ranger—  
Factory Wired.....\$329.50  
Johnson—Viking Courier—Wired.....\$289.50  
Johnson—Navigator—Kit.....\$149.50  
Johnson—Navigator—Wired.....\$199.50  
Johnson—Viking Valiant—Wired.....\$439.50  
Johnson—Viking Kilowatt \$1,595.00,  
Desk.....\$132.00  
Barker & Williamson—  
L-1001A Amplifier.....\$240.00

We are factory distributors for Vocaline, Gonset, E. F. Johnson, Sincor B&W Hexacon, Adjust-A-Volt, CBS, Hammarlund, National and Geloso. Trade-ins accepted.

### LATE TRANSFORMER SPECIALS ALL UNUSED, ALL COMPLETELY SHIELDED

- FT-2388 Plate Transformer.  
Primary: 117/230 Volts AC, 50/60 cycles.  
Secondary: 1,000 Volts CT @ 350 Ma continuous, 3,000 Volts test.  
Size: 5 19/32" H x 5" x 4 1/2". Price: \$3.50 each.  
FT-2389 Choke, 8 Hys. @ 350 Ma., 2500 Volts test. Price \$2.50 each.  
Size: 5 1/4" H x 4 1/4" x 4 1/2".
- FT-2379 Transformer, Filament.  
Primary: 117/230 Volts AC, 50/60 cycles.  
Secondaries: (1) 6.3 volts @ 20 amps.  
(2) 6.3 volts @ 1 amp.  
(3) 5.0 volts @ 4 amps.  
Size: 6 1/4" H x 4-21/32" x 4-1/32". Price \$2.50 each.
- FT-2366 Transformer, Filament (Bridge type).  
Primary: 117/230 Volts AC, 50/60 cycles.  
Secondaries: (1) 6.3 volts @ 20 amps, 3,000 volt test.  
(2) 5.0 volts @ 3 amps, 3,000 volt test.  
(3) 5.0 volts @ 3 amps, 3,000 volt test.  
(4) 5.0 volts @ 3 amps, 3,000 volt test.  
Size: 4 1/2" H x 3 3/4" x 3 3/4". Price \$2.50 each.
- FT-2365 Transformer, Filament. (Ideal for 813, etc.).  
Primary: 117 volts, AC 60 cycles.  
Secondary: 10 volts, 6 amps.  
Size: 4 1/2" H x 3 3/4" square. Price \$1.50 each.
- FT-2360 Transformer, Variable. Powerstat—New Surplus—Original Sealed Cartons.  
Primary: 115 volts, 60 cycles AC.  
Secondary: 0 to 115 Volts AC @ 7.5 amps, ¾" shaft.  
Special Only.....Price \$13.50
- Large Knob and Plate.....Price \$1.50 extra
- DUMONT Plate Transformer  
Primary: 115 volts, 60 cycles AC.  
Secondary: 500-0-500 VAC (1,000 volts AC CT) @ 500 ma.  
Size: 5 1/4" H x 5" x 4 1/2". Price \$3.50 each.

- New Lot of over 1,000 Meters—All Popular Types—Write Your Needs!

WRITE FOR LATEST TUBE CATALOG FREE!  
Receiving, transmitting, special purpose tubes, diodes, transistors, etc. We have a large diversified stock at sensible prices. Export inquiries welcomed.

### 2-COLOR TUBE CARTONS

Keeps your tube stock neat. New safety partition prevents tube breakage. Distinctively lithographed in glossy red and black. The most distinctive tube carton available today. Minimum quantity: 100 of any one size. Write for case lot prices. Packed 1000 to case, F.O.B. N.Y.C. No C.O.D.'s on cartons—Send full remittance including postage—Excess refunded.

Size For Tube Per 100  
Miniature.....6AU6, etc.....\$1.00  
GT.....6SN7, etc.....1.25  
Large GT.....183, etc.....1.50  
Large G.....5U4G, etc.....2.00

**WHITE GLOSSY CARTONS**  
Completely blank. No printing or color. Otherwise same as above. Same high quality same low prices. Specify "WHITE" when ordering. When color is not stated, 2 color cartons will be shipped.

HOW TO ORDER: Send full remittance and save C.O.D. collection fees—Include sufficient money for postage—We refund unused amount—if you desire shipment C.O.D., include 25% deposit—Send cash by registered mail. No C.O.D.'s on tube cartons. All Prices F.O.B. N. Y. C. Specify How to Ship.

Open Monday to Saturday—Come in and Browse—We are now Printing and Shipping from St./INT Sta. 1 Flight up—10,000 Sq. feet of valves.

2WX: NY 1-3731

**BARRY ELECTRONICS CORP.**

512 Broadway, Dept. RN-12, N.Y. 12, N.Y.

Phone: WALKER 5-7000

- Service Holds a Convention (Silver).....57 Nov.
- Service Technicians' All-American Award Winners.....52 Feb.
- Telecopter—A Flying TV Station.. 39 Oct.
- Video Tape—Tape That Takes Pictures (Anderson).....42 July
- X-Rays from TV Sets: Are They Harmful? (Maduell, Jr.).....58 Nov.

### SERVICE NOTES

- "Automatic Rheostat" Protects TV Sets (Gotwald, Jr.).....42 Feb.
- Convergence Time Savers (Hadrick) 56 Sept.
- Day in the Shop (Eldridge).....60 May
- Facts About Vertical-Sweep Circuits (Philbrook).....52 Mar.
- Field Test for Gassy Picture Tubes (Jasen).....52 Oct.
- Hidden Bypass Action (McRoberts) 39 Mar.
- Hot Chassis? Play It Safe (Bramham).....63 Dec.
- How the G-Y Signal is Used (Middleton).....62 May
- I. F. Alignment? It's Easy! (Eldridge).....40 June
- Intermittents Can Be Licked (Sappe).....40 Mar.
- Key Test Points in TV Sets (Eldridge).....61 Oct.
- New TV Circuits for '58 (Buchbaum).....35 Apr.
- New TV Test Signals Aid Servicing (Risse).....48 Apr.
- Series-String Tubes and Circuits (Hughes).....64 Jan.
- Service Notes 114 Jan.; 120 Feb.; 152 Mar.; 148 Apr.; 120 May; 116 June; 121 July; 96 Aug.; 116 Sept.; 130 Oct.; 160 Nov.; 144 Dec.
- Servicing Relays in TV Circuits (Buchbaum).....46 Jan.
- "Sound" Advice for TV (Eldridge). 38 Aug.
- Taming Tough Dogs (Rosen).....44 Jan.
- Test Bench Puzzler: No. 1 (Margolis).....115 July
- Test Bench Puzzler: No. 2 (Eldridge).....118 Aug.
- Test Bench Puzzler: No. 3 (Margolis).....108 Nov.
- To Troubleshoot—Remove Tubes (Glickstein).....58 Dec.
- Troubles in Retrace Blanking Circuits (McRoberts).....66 Feb.
- TV Circuit Improvements (Buchbaum).....39 July

### TEST EQUIPMENT

#### AMATEUR

- "Mobile-Dip"—a Portable Grid-Dip Meter (Burgess).....58 Apr.
- Monitor Your Tone and Frequency (Wortman, W2LJU).....66 Mar.
- Multi-Dipper (Popenco, Jr., W6IWM).....59 Aug.
- Multipurpose Ham Accessory (Myerholtz, Jr.).....98 Feb.

#### AM-FM

- Boost Your Scope's Sensitivity (Lederer).....54 June
- Build a Versatile LC Meter (Brizendine).....41 Dec.
- Cable Tracer-Checker (Frantz, Sr.) 42 May
- Extend Your Signal Generator's Range (Pugh, Jr.).....42 June
- Improved Multi-Purpose Probe (Kaye).....63 Nov.
- Improved Sine-to-Square-Wave Adapter (Turner).....107 June
- Maintain and Repair Your Own Scope (Buchbaum).....57 Mar.
- Multi-purpose Scope Probe (Russell).....52 Jan.
- Scope Calibrator and Pulse Generator (Chioma).....70 Nov.

- Transistor Galvanometer Amplifier (Bernard).....43 Feb.
- Transistorized A.F.-R.F. Signal Tracer (Turner).....64 Nov.
- Universal Test Leads (Diers).....52 June

### MISCELLANEOUS

- Checker for Intermittent Tube Shorts (Cotter).....116 Apr.
- Electronic Ignition Analyzer (Peters).....48 July
- Know Your V.O.M. (Buchbaum).....60 Sept.
- New Tube Tester Data 118 Jan.; 158 Feb.; 118 Apr.; 92 June; 84 July; 117 Aug.; 118 Oct.; 130 Nov.; 98 Dec.
- Special Applications of the Square-Wave Generator (Garnier).....67 Dec.
- This Month's Cover.....45 Apr.
- Tube Checkers Promote Service... 45 Apr.

### TELEVISION

- Flyback Tester (Eldridge).....48 Mar.
- Get Color Bars from Your Linearity Generator (Lowry).....142 Apr.
- TV Analyzing—Simplified (Kiver).....46 Sept.
- Use Your TV Set As An Oscilloscope (Southworth).....66 Apr.
- Video-Frequency Response Testing (Middleton).....59 Feb.
- Wide-Range Field-Strength Meter Adapter (Brizendine).....43 Nov.

-30-

## OLD PM SPEAKER MAGNETS AID PM SPEAKER WORK

By A. VON ZOOK

BEFORE discarding defective small PM speakers, it is a good idea to remove the voice-coil magnets and save them. Small magnets have many uses about the service bench. One worthwhile application comes up when it becomes necessary to drill out the rivets of a defective audio-output transformer that is mounted on the frame of its associated PM speaker. When such drilling is done, iron filings are generally attracted to the magnet in the speaker itself. An otherwise good speaker may be ruined in this way. If some small magnets salvaged from old speakers—about four will do—are grouped about the rivet to be drilled out, iron filings will be attracted to these magnets rather than to the one in the speaker itself. -50-



### PHOTO CREDITS

- | Page                        | Credit                          |
|-----------------------------|---------------------------------|
| 37 (top), 38, 44, 46 (left) | Bell Telephone Labs.            |
| 37 (bottom)                 | Zenith Radio Corporation        |
| 40, 134                     | Aluminum Co. of America         |
| 46 (right)                  | Hoffman Electronics Corp.       |
| 49, 50 (right)              | Pacific Semiconductors, Inc.    |
| 50 (left)                   | Jerrold Electronics Corp.       |
| 52                          | Blonder Tongue Labs.            |
| 64, 65, 114                 | The Hallicrafters Co.           |
| 72                          | Heath Company                   |
| 112                         | CBS Laboratories                |
| 138                         | Sylvania Electric Products Inc. |
|                             | Official USAF Photo             |